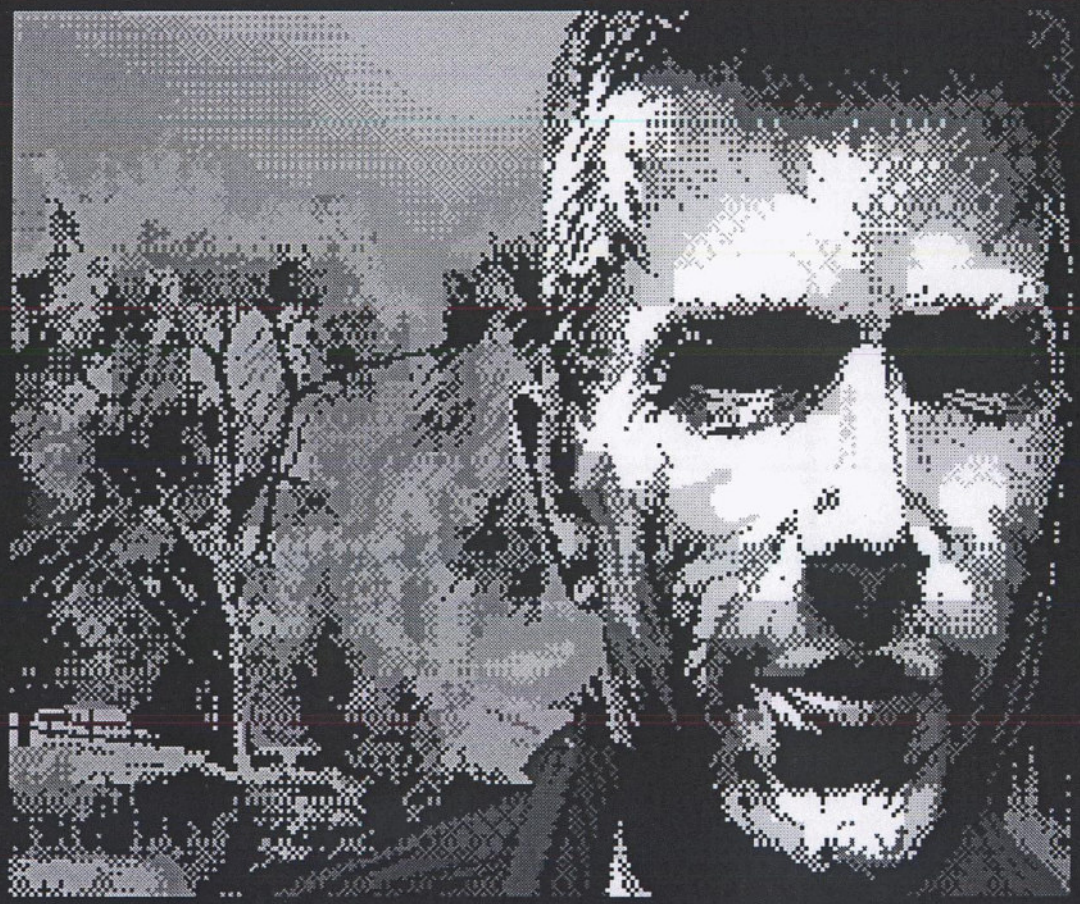
SUC-SESSION

YOUR SPECTRUM - MAGAZIN

Issue 200 March 2004



Picture: Village People from Diver

SUC-Session again?

Contents

Contents/Publisher/Prices	2	PCI-Spectrum	17
Editorial	3	Game reviews	18
Readers Letters	4	Stars on the internet	20
News in Brief	7	Tips & Tricks	21
Classic Computing	8	Immortally pokes	25
Hot to get a MB02 for zero	10	Closing words	27
Events Calendar	16	SINTECH Advertisement	28
The perfect Spectrum-Setup	16	Carnival with Wolfgang	99

Publisher

The Spectrum-User-Club, formally known as the Spectrum-User-Club Wuppertal, is the oldest existing Spectrum-Club in Germany, the ASC is the only Spectrum-Club in Austria. Since 1998 the Club-Magazine SUC-SESSION and SCENE+ have been sent together to all club members. They are compiled from contributions produced by the editor(s) as well as the readers. We call on all readers to send in their contributions as text files on cassette, +D, Opus, MB02 or MS-DOS (Word or pure Text files) or handwritten, per e-mail or printed on paper to us.

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How can you become a Member

Membership is basically free but the main services, the clubs magazine SUC-SESSION and SCENE+ can be subscribed to individually or together.

The Prices:	Single issue	Yearly subscription (6x)
1) SUC-Session Magazine	3,00 Euro	16,00 Euro
2) SUC-Session Magazine as a PDF-Download	1,50 Euro	8,00 Euro
3) SCENE+ Disk-magazine	2,50 Euro	12,00 Euro
4) SCENE+ on Cassette	3,50 Euro	18,00 Euro
5) SCENE+ as a TAP-Download	1,50 Euro	8,00 Euro
6) Combi-packet SUC-Session & SCENE+ Disk	5,00 Euro	26,00 Euro

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As reason for the payment please include the information : Packetnumber(s), for example Nr. 6 or 2 and 5 or whatever you want to order.
New members who are ordering the Diskette version of SCENE+ should state the required format, we have available MB02+, Opus, +D und now also D80/Didaktik. If you are ordering additional Disk's or Cassettes together with a Combi-Packet then the price for these must be added to the Subscription number. Any questions should simply contact us per E-mail or under: 0049-711-775033.

Editorial

Dear Spectrum-Friends,

Firstly I have to apologise, that is apologise for the many errors which crept into the last edition of the magazine. For example it started on the front cover: Event Calendar 2003 it should of course have been Event Calendar 2004 (*I managed to correct this for the English edition – Ian)*. Also just what the Event Calendar was doing on the front cover was a question asked by some. I simply ran out of space and when you discover this as your working on the last page then I would have needed to add 4 further pages. That was possible as I had enough articles but it would have made the magazine even later, and I didn't want that to happen. So I took out the SINTECH advert and also used the cover page for text and then it fitted. I must also apologise for the rather one sided reporting. It was almost all reports of past Spectrum events. It was simply a coincidence that these articles all turned up in the one issue of the magazine. To this was added the fact that I couldn't really hold these articles over for a later issue as they needed to appear a close to the events as possible. Though I realise that I didn't keep to my promise to use all of the articles I had and make the SUC-Session as thick as possible. But there were also reasons for this, for one it would have taken more time and for another there had already been a rather long gap between the last issue and the one I was preparing, so that really in this time 2 magazines should have appeared. And so I took the articles I still had and began immediately working on the next issue of the magazine… at least I hope to get it finished as while writing this editorial, I have all of the articles but the magazine is still a long way from finished. Something can always get in the way, though I hope it doesn't happen this time. At the moment I have a bit more time and hope to put it to good use and work on the magazine as I know this situation won't last for ever. This year I have my final exams as a 'Betriebswirt'. This is the highest level which you can reach as a 'Kaufman' without a degree, this is a course containing both theory and practice and so is often more valued by companies than a degree. So I think you will all understand what I can expect and of course as well as my profession there is of course also the family….
So once again in this issue I want to ask for support. I took a long time to translate the English articles into German for the last issue. As the magazine is first prepared in German. Never-the-less this means that Ian doesn't have so many articles to translate for the English edition…. (*Thomas says this while probably sunning himself by the pool and I'm slaving over a hot keyboard – Ian)*… but I could do with some help here to translate the sometimes difficult technical terms from English into German. Also I would like to ask the English authors to please use difficult technical terms as sparingly as possible. Please remember that they don't only make the translation difficult but also that many readers of the English edition have a different mother tongue. So that even if we can publish the English articles unchanged, some of the more difficult terms may not be understood by all of the readers. I know it's not easy to put yourself in the place of someone who speaks English as a second language, but please try and write things as simply as possible. Both the readers and the translator will thank you for it.

While I'm busy thanking people: Thanks to all of you who in these difficult times are still there and supporting the club. This year there were almost no members lost to the club but we still managed to find some new readers. The number of readers is shifting more and more to the English edition, which shows that we have filled a gap in the market. Lets

carry on in this vein! Help us spread the word amongst your Spectrum friends about the magazine. We really do need every reader so that we can continue for a long time.

But now have lots of fun with is issue, which this time has a more varied content.

Thomas

Readers Letters

There hasn't been much time between the last issue and this one to write letters, never the less a number of letters have managed to reach us.

Wilko Schröter wrote:
I'm working on an article data-bank of the 24 issues of CK.
Question 1: Were you perhaps the editor ? (The young man with the goatee beard) I heard that the 'Computer Flea market' was produced by a totally different Thomas Eberle.
Question 2: Unfortunately I haven't got the first issue (December 1984). Have you got any idea where I could get it from?
Question 3: As well as this the cassettes which were offered for the Spectrum (S1, S10,S20,...) I also do not unfortunately have. Where could I get them from (or as TZX-Files)?

Hello Wilko, so I will try to answer your questions. I am often mixed up with the editor of CK. Not only because we have the same name but also because we are both into retro computers. The Editor of CK later produced the 'Computer Flohmarkt' (something like Computer Mart in the UK) but he isn't related to me or married into my family or me personally.
As to your other questions I'm afraid I can't help you myself. I have neither the missing issue nor do I know where you could get it and the same goes for the cassettes. But maybe some of our members can help you? I know that at one time there was a CD with all of the pages from CD scanned onto it, but who has got a copy of the CD I don't know. The software could be available on WOS but you would need to know the names of the individual programs. Anyone who can help should send an answer to the readers letters so that everyone can benefit. We will forward the answers to Wilko directly.

Erik the Swede has reported in:
Hi Thomas, at the Spectrumania Party in Stuttgart a number of people took part in a group photo. I would really like to order a copy (not digital but from a negative).
I would also like to order the SUC-Magazine (in paper form J) which contained the report of the Spectrumania.
Greetings from Erik, the Swede, alias Browallia/Nukleus

Hello Erik, I was very busy taking photo's but I simply hadn't found the time to transfer them from the digital camera to the hard-disk. What happened was bound to happen, I deleted the photo's from my camera. Fortunately Marco sent me a CD with pictures from the Spectrumania but unfortunately it doesn't contain the group photo. I am hopeful that not everyone did what I did and that someone out there can help Erik.
I don't want to get involved in any shadowy advertising but I can recommend sending your photo's on-line to DM (a chemist chain like Boots in Germany), because they produce paper photo's very quickly. Here is the E-Mail address for Erik: browalli@yahoo.com

Bernd Reiher now has an Opus:
Hello! Is there a copy program which can be used to copy cassettes to a Discovery 1 drive?
Greetings, Bernd

Hello Bernd, there are many different copy programs which will do this. If you send me the return postage and a diskette, then I will copy a few things onto it which I have also used to build up an Opus collection.

A call for help has reached us from England:
I hope you can help. My mother is 77 years old and now has found a Spectrum 48K which I gave her as a present 20 years ago. Unfortunately she can't remember how to connect it to the television and after all these years, I can't remember either.
Friendly greetings, Heather Smith

Hello Heather, I can try to help. It's difficult to explain just in words but I will look in our customer data and see if there is a Spectrum user near to you. We have around 2000 Spectrum customers and many of them are in Great Britain.
The Spectrum can be connected relatively simply to a television. There should be a TV-Cable with the Spectrum. This cable is plugged into the rear of the Spectrum into the socket marked 'TV'. The other end goes into the aerial socket of the television. Then plug the power supply into the mains and the other cable from the power supply into the 9V socket of the Spectrum. Now check that the Spectrum is working: Even if there is no picture it's still possible to press the keys. Each key press should produce a soft click. Then you know the Spectrum is working. Now you have to look for the correct channel for the TV signal. It's best to turn down the volume on the television, the Spectrum doesn't send any sound to television anyway and uses it's own tiny loudspeaker.
Unfortunately I can't tell you have to search for a channel on your television, every model of television is different. It's the same procedure you use to search for a new TV program. The Spectrum should appear somewhere around channel 36 but it can be 35 or 37 it's not very exact.
I hope this has helped. You can have a lot of fun with the Spectrum, this is true even for older users. It's even more fun if you join a group especially in these times where it's difficult to find accessories and software for the Spectrum. Our Spectrum-User

Club also has a magazine in English. Your mother wouldn't be the oldest member but certainly the first female....

Our new reader Peter Scott has managed to obtain an MB02 and has some questions:
Just two quick questions. I am very uncertain when it comes to the Copy command which is described in the instructions. What do I have to enter when for example I want to copy File Nr. 33 from my Drive 1 to the Ramdisk Drive 9 (which is installed and works)? And does the MB02 also work with the +3 and +2A? Thanks!

In order to copy files you need a utility program. There are two utilities on the system diskette:
CDD (Copy Disk-Disk) : The command is NEW "CDD":33;9,0
This means copy the file Nr. 33 from the current directory on Diskette 9 (RAMDISK) to Directory 0.
If you want to copy a number of files the you can use for example:
NEW "CDD":33'40;9,0
This means copy all of the files 33 to 40. You can call up a help page with examples. Just type NEW "CDD" and the help page will be displayed.
The second possibility is the copy program DISCOBOLOS. It is very easy to use. Just load it and you will see everything. If you press "H" then you will get a help page.
A third way to copy is of course the classic way of doing it as with a cassette. Simply load the file. Change the diskette or the directory and then save it using the standard LOAD and SAVE commands.
The MB02 works really well with the Spectrum 128 and the Spectrum +2 but not with the +2A. In order to use the MB02 with the +2A you need a FIXIT. This is an adapter which is fitted between the Spectrum bus and the MB02 and was in earlier times also used for the +D. In spite of this I don't think it is a good idea, the best Spectrum for the MB02 was and still is the Spectrum +2.

Bernd Reiher has a question about the Opus:
Thanks for the information but how do I recognise a 180K diskette drive?? Only when I format the disk ?

Not even then. The Opus always formats to 180K even when a 720K drive is installed. You can only format to 720K with a special format program and if the drive allows it. But I gave you a program which can do this unless the diskette won't work in a 720K drive because it has been copied for a 180K drive. I expected you to use 180K because your diskette was 180K and secondly this is the standard. The 720K drives were used much later to upgrade the Opus, perhaps you have two drives 1x 180K and 1x 720K?

News in Brief

MB02 circuit diagram
At last 8BC has published the circuit diagram of the MB02 at : http://www.8bc.com/sinclair/ under Download
Source: Peter Hilbert

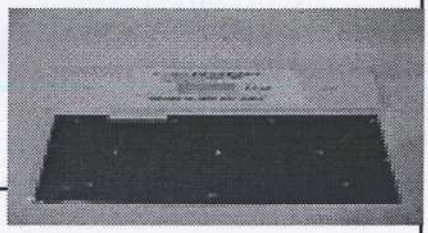
ZX81 Keyboard membrane
SINTECH already sells membranes for the Spectrum and QL. Now Rich Mellor of RWAP software in England is trying to get people interested in producing a membrane for the ZX81. Anyone who is interested in offering support can add an entry to the guest book of RWAP Software at http://www.rwapsoftware.co.uk/guest.html

AY-Riders in Concert
The AY-Riders have held a concert in Warsaw. Pictures of masses of young people at the event, most of which have probably never seen a Spectrum or heard AY can be found on the Internet at http://www.zxdemo.org/extra/ay_riders/2004-02-28/
Source: Yerzmyey/H-PRG-AY_R

Transfer PC<>Spectrum
Johan Koelman has developed an interface which allows Spectrum programs to be stored on a PC as TAP files and then reloaded into the Spectrum as normal files. Up to now there is only a prototype and the software is not yet finished but it's being worked on. More information at http://www.zxspectrum.00freehost.com/zxpc.html
Source: Johan Koelman

BMP2SCR EXP
Here the development is progressing rapidly. Anyone who likes to create or modify Speccy graphics on a PC must be very grateful that LCD has now published version 2.10 of his program and you can get it at http://members.inode.at/chmielewski.leszek/bmp2scr.htm
If you want to make a donation to LCD to encourage further development then you can do it easily on the above mentioned site.
Source: LCD

Steel – Cover
Thomas Andrews has replaced the plastic plate which presses the keyboard membrane onto the keys in the Spectrum plus, with a steel one. The result is a plate which is much more stable than the plastic one and provides the same response from all of the keys irrespective of where they are on the keyboard. Anyone who would like a new cover plate, can order one from SINTECH who have taken over the sales.
Source: Thomas Andrews



New Software
Here is a list of the project status for various Spectrum programs:
Double Dragon 128 http://home.btconnect.com/gamestyle/links.htm
Still being worked on. A number of graphics are finished.
Castlevania ZX http://www.redeya.com/bytemaniacos/castlevania.html
Rather quiet at the moment but a number of graphics are finished.
Sonic ZX http://www.worldofspectrum.org/anestis/soniczx.htm
Further development depends on the reaction from SEGA. A flipper company has bought SEGA so maybe it would be worth asking again. A number of graphics are ready, the AY-Sound has been integrated from Master System and a level editor has been written.
Klass of 99 http://www.jmk1.freeserve.co.uk/klassof.htm
Seems to have got stuck but the graphics and the game engine are finished.
Alone in the Dark http://www.geocities.com/cyborg_jim/p1.html
New Project
Source: Andrew Owen

Classic Computing + Spectrumania 2004

'Der Verein zur Erhaltung klassischer Comuter e.V.' (A Club to keep alive the classic computers) has it's base in Neubulach which is near Stuttgart. I had the good fortune to get to know Mr Löffler, at least on the telephone and he told me that they are planning something big on the edge of the black forest. It should be a really large event with representatives of all the classic computers. So I thought that we would certainly want to offer our support.

I know the date is not the best choice as just one week later we have the Spectrology in Wittenberg. But then this year there is a Spectrum meeting somewhere or other nearly every month, so it must still be possible. So I have decided this year to show a presence at both the 'Spectrumania' and 'Classic Computing'. This means that Spectrum users will have an area with their own tables for the computers while still being bound into the events program for the day and it will be possible to look over the edge of the Spectrum tables and see what is happening with other systems. It's all starting really well as the leader of the club Mr. Löffler is working with a lot of enthusiasm to make sure everyone is informed. There's some time till the event but we would also like to start as early as possible to spread the information. Now I'll pass over to Mr. Löffler as he has written some lines on the subject. I hope that one or more of the Spectrum users will be able to make a short presentation or demonstration of the Spectrum as part of the events program.
Thomas

Dear Computer friends,
The events we have held in the past years under the name 'Classic Computing' have in the main been a meeting of friends and collectors of the more legendary and exotic computers. These collectors are of the opinion that without these predecessors to Pentium and Co. the high tech machines of today simply wouldn't have been possible.
The club 'Verein zum Erhalt klassischer Computer e.V.' was called into existence in order to preserve these once very modern computers and provide a platform for the growing army of enthusiasts to show them off to all interested parties. Come to the next 'Classic Computing' and go back in time to those nostalgic days. Play the old games which consumed so many of your nights. Enjoy a few hours of nostalgia with these forgotten computers from a technical world which is changing ever faster.
Perhaps you also own such a wonderful machine and are looking for accessories or the chance to get your oldie repaired. Our flea market will give you the chance to pick up some of those add-on's and spare parts. Our specialists will be on hand throughout the event with tips and good advice and more than willing to help you with your problems.
See this classic 'Live', show us how good you are at playing the games and look once again with amazement at the machines which may well have provided you with your first steps into the world of computing!

Come with us on a trip into the history of digital computing!

The members of our club will present for you the varied branches of the computer world. Here just a selection from the corner stones of the event:

- Rare items which you have never seen
- Prototypes which were never sold
- Apple computer – then and now
- The electronic laboratory with robots, oscilloscope and the SX-64
- The office workplace from 1979 with the CBM machines
- Pocket and Portables from way back when
- Suitcase portables of the heavier type
- Game consoles and midi enabled computers from Atari
- The VC-20 with it's modules
- Various generations of Amiga's
- Game competition on the legendary C64
- Typing competition on various computers
- Repair corner – Floppies, computers will be repaired
- Presentations – on various subjects
- Flea market with the possibility to buy
- Info's on hardware, software and the Internet

And a LAN party is planned to accompany the event.

The contact address of the club:

Verein zum Erhalt klassischer Computer e.V., c/o Roland Löffler, Schulstrasse 6a, 75387 Neubulach
Tel: 0049-7053-3931133, Fax 0049-7053-967705
E-Mail: rl@classic-computing.de

Information about the club:
The club was formed on the 22nd November 2003 in the public house 'Löwen' in Oberhaugstett, 12 people were present. The furthest travelled was Wolfgang Kainz-Huber from Munich and Alexander Dümler from Bamberg.
Following the welcome from Roland Löffler the owner of the Computer museum Munich, Wolfgang Kainz-Huber agreed to keep the minutes.
Roland read the proposed club rules and a number of points could be dealt with quickly others resulted in much discussion. After agreement had been reached on the rules, 9 people immediately declared that they were ready to join the club and from these a leadership was selected.

The leadership of the club looks like this:

President:	Roland Löffle, Neubulach
1st Vice President:	Manfred Schwab, Götzingen
2nd Vice President:	Alexander Dümler, Bamberg
Secretary:	Wolfgang Kainz-Huber, München
Treasurer:	Rüdiger Schuldes, Waiblingen

In Febuary 2004 the club was officially entered into the register of clubs a the Amtsgerichtes Calw and so is allowed to use the abbreviation e.V.

In the meantime the club has developed an internet portal: www.classic-computing.de
The portal contains extensive information about the club. The club rules, the minutes from the initial meeting and the entry from the club register and a list of members.
The portal has it's own powerful forum, a chat possibility for on-line users. The portal is divided into an area for visitors, for members and for the club leadership.

The plans for the year 2004 are:

Following the founding of the club 'Vereins zum Erhalt klassischer Computer e.V.' the festival Classic Computing 2004 is the big event in the programme.

Yours faithfully,

Roland Löffler
President

How to get a MB02 for free

If you do not have a floppy interface, you're missing a lot of the possibilities the Spectrum has.
But even when owning an interface such as a Betadisk, Opus Discovery, D80, Disciple or PlusD, some people always want more…

When I first read about the MB02 some time ago I thought it was out of my reach to get one, because the MB02 isn't produced any more and it succesor, the MB03, may not be produced, and if it will be it will cost about 300 euro's.

The MB02 and MB03 should be almost twice as fast as the Disciple, you are able to connect 4 drives, floppies will be formatted with 81 tracks of 11 sectors, so the size will be 1.8 Mb's! And you can store in a maximum of 255 directories.

More?
The standard MB02 has an Z80DMA processor… This is why the disk-access is so fast. The MB02+ has an IDE controller (you can install it on a standard MB02). You can install up to 512kB fast ram and a real time clock.

Aaaaah… If I could get my hands on one…

But… There is another way of getting the MB02!

You are also able to use real 1.8 Mb floppies, Discover the unbelievable speed of the disk-access, you don't need any cables, There's no risk of frying your Spectrum, You can install it without getting out of your chair, it's very complete, and it won't cost you even one euro,

What do you need for this?

Well,

it's like cooking.

You just need the right ingredients…

No, I'm not going to teach you how you will be able to build an MB02 on your own.You don't have to buy yourself equipment for soldering or etching…

I will explain.

Why the need of a PentiumII computer with Windows98?
O.k. You discovered it's about emulating. RamSoft's RealSpec supports emulating the hardware of the MB02.
But:

- Direct disk-access isn't possible under WindowsNT, 2000 and XP.
- The 32-bit version of RealSpec (for Windows) doesn't support the real disk-access.
- Sound drivers are hard to install under DOS

So you need a PC with Windows98 or Windows95.
A Pentium1 processor isn't good enough, because it's not powerfull enough to emulate at 100% using RealSpec. I tried this with even the fastest Pentium1 233MMX processor (don't know about AMD K6 processor though).

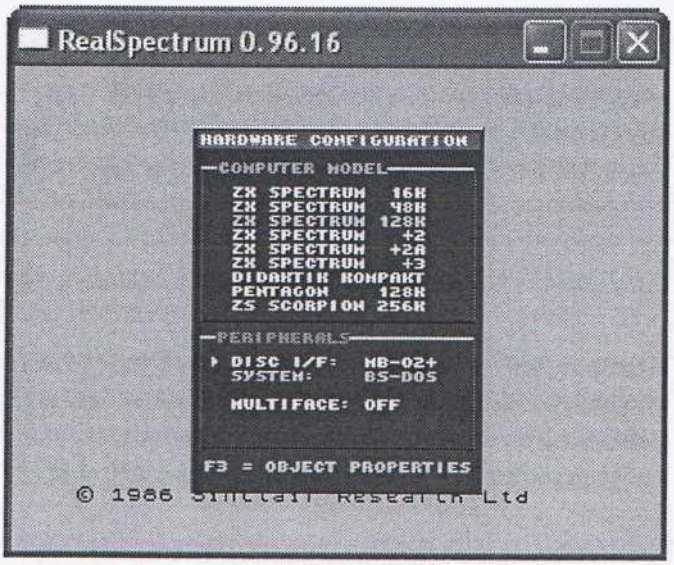
How will I be able to get a MB02 bootrom and the System Disk?

These are hard to find.
Luckally you don't need the real rom and disk; the files of the two are enough.
But the're not available on the web. Best way to get them at the moment is to mail me.
If there isn't something against, I'll let them put on the web (e.g. World Of Spectrum).

And then?

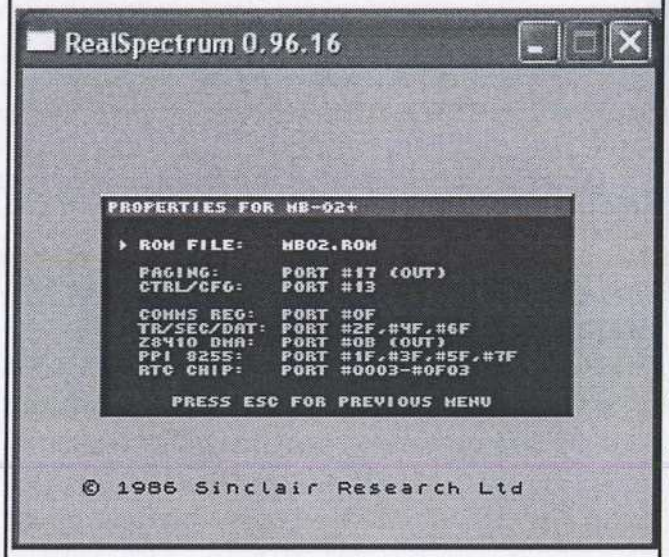
Well, you can edit the realspec.ini file (you are going to find that very usefull if you will run RealSpec more than once, as that will probably be the case).
But first I will show you what you have to edit using the configuration options while running RealSpec.

When you have started RealSpec press F3 for the Hardware Configuration menu:

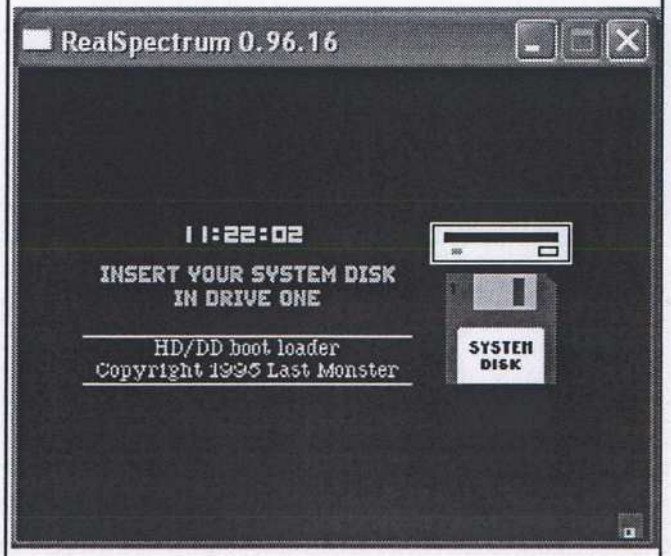


Choose the Spectrum of your choice. Press TAB to go to the Peripherals section of this window and use the cursor keys to select the MB02.When you have selected the MB02 and you press enter.

This window is only for some information. You can see that you need a rom-file, 'MB02.ROM'. You will have to install that in the RealSpec directory.There are the realtime clock registers, the parallel and serial ports and the Z80DMA.Use ESCAPE to get back.



Wow, what is this? It looks like an Amiga!Phew... It isn't. It's your Spectrum with MB02 connected!
Starting to get the feeling you are using a real MB02 already? Press F6 for the disk-menu.



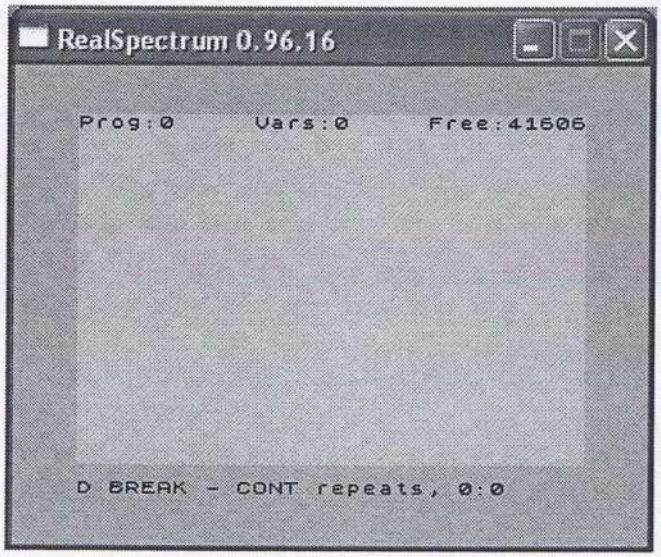
Look, 4 drives!You should have copied the system.mbd file in the RealSpec directory at this point.

Press ENTER and select the system.mbd file for drive one.
And let's choose the real PC floppy-drive as the second drive! Wow! It boots!No, you're not emulating a PC...

With a unedited system disk, the MB-Commander should automatically start.

This is a very usefull tool with lot of functions not available in Basic.

If you don't want the MB-Commander to automatically run, hold SPACE when booting.This way you will get to basic.



Additional tools

Some on the internet I found a tool called 'TAP2MBD.EXE'.
This tool will create MB02 floppy-imagefiles from .tap-files.

Am I able to boot in 128-basic?

I discovered when you enter Basic while booting the MB02, you will get in a sort of 48k basic.
I don't know if it's the only way of booting, and if it isn't possible to use a 128 rom. Have to find that out.
(BS-Basic after booting is the only Basic usable with MB02. It is very near to 48k Basic with some additonal commands. ED)

How about the new Basic-commands?

This might be the most exciting part!

The MB02-fileformat is capable of storing 255 directories on one floppy.
Directory 0 is the root directory which you will enter when you insert a new floppy.

With the @ command you can select the disk-drive.
Example:
@1 selects drive one.
With $ you select the directory.

$1 selects directory 1, $0 selects the root.

CAT or COPY will show you the contents.

Now think of the directory as a tape which automatically rewinds.

When you would use a tapedrive and type LOAD"" and start a tape, it would load the first basic program it finds.

The directories on a MB02 disk work the same way.
Even simpler: you can enter 'LOAD' without quotes ("").
It will load the first basic file it finds.

Because of this tape-orientated disk-system you understand why it is easy to convert TAP files to MB02 disk files!

You don't have to rewrite the code from the program to load from disk; even large multi-levels games with several levelfiles will be converted and loaded from disk without any problem!

Also headerless tape-blocks will be converted to headerless files on the MB02 disk.

I put about 6 directories on the System disk with large games, such as Batman, R-Type, Lemmings (with all 40 level-files!) and more! And I still got 1.4 Megabytes left...

Use the MB-commander to copy files.

Automatically starting in Basic

I replaced the AUTOEXE file from the root of the system disk with:
10 STOP
(and saved it with SAVE "AUTOEXE" LINE 10).
This way I will always start in Basic.

With LOAD "MBC" I start the MB-Commander. (After saving the new Autoexe, you have to erase the old one or the MB02 will boot always the first autoexe it can find. ED)

The RealSpec .ini-file

I promised I would explain the realspec.ini file.
You need to configure the following lines to get MB02 emulation every time you start RealSpec:

```
MB02-Enabled: 1        # Enable MB-02+ interface
MB02-Rom: mb02.rom     # ROM file for MB-02+
DisksFolder: [location of your RealSpec directory]
MB02-Disk1: system.mbd # Load disk into MB02 drive 1-4 (MBD)
```

We want more! We want more!

O.k. I haven't covered everything the MB02 is capable of, but that's also because I haven't figured it out completely.
For example: is IDE-emulation possible in RealSpec?

Breathe in and out slowly...

I think you will get it working...
You will find the manual and all other documents on: www.8bc.com/sinclair.

The reason I wanted to emulate the MB02 is because I was curious about the power and it's possibilities.
Now I'm more interested in buying a real MB02 or MB03.

It's a pity they are hard to get and the price is high, but... I'm redesigning the MB02 schematic and PCB. The 8 Bit Company has published the schematics.

If you are interested in this project, please mail me. I might finish this complex project and produce some. The price might be less then 100 euro.

Don't hesitate to mail me:
benjamin.versteeg@benophetinternet.nl.

Greet!

Benjamin Versteeg

Events Calendar

01.+02. May 2004
Vintage Computer Festival Europe (VCFE 5.0) in Munich. Begins Saturday at 9.45 AM. Address: Mehrzweckhalle des ESV München Ost, Baumkirchner Str. 57, 81673 Munich. On the Internet at: http://www.vcfe.org/D/

22./23. May 2004, 9AM to 6PM
3rd International Sinclair and Sam Meeting in Urmond (NL)

11/12. September 2004, 9AM till 9PM, Sunday. 9AM till 6PM
Classic Computing 2004 + Spectrumania in Oberhaugstett. More at www.classic-computing.de

12. September 2004, 10AM till 4PM
Spectrum and SAM meeting in Bunnik/NL, route-map at: http://www.hobby.nl/~sinclair-gg/duits/bunnik-map.dui.htm

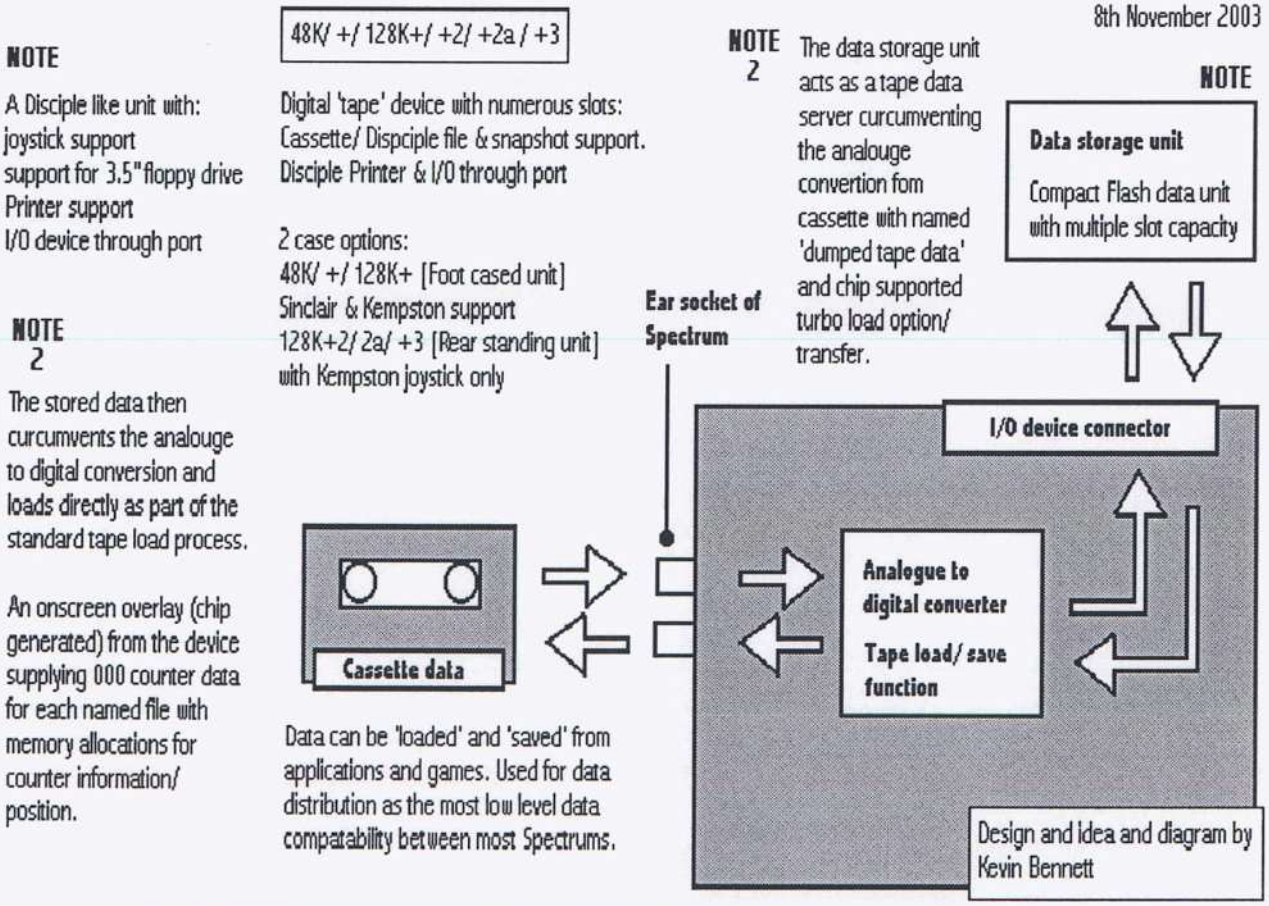
18/19. September 2004
Spectrology in Wittenberg.

02. October 2004
2nd general meeting of both clubs, the SPC and the Joyce-AG in Ittenbach near Königswinter

12. – 14. November 2004
HCC Dagen in Holland. Details to follow.

The perfect Spectrum-Setup

A "dream" from Kevin Benett



(it all reminds me a litte bit on the MB02, especially the possibility to load via Tape-commands. Maybe Kevins dream is already reality: MB02 with IDE Interface. ED)

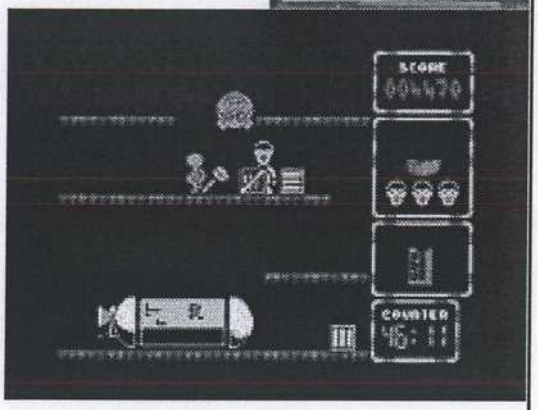
PCI SPECTRUM

Recently I found on your web site the information/ advert for the MB02 & MB03 disk interface. These could be excellent for Spectrum playing a tape archive and possibly for additional development.
Inhand with with a PCI Spectrum hardware board would be an excellent interface with the internet for distribution/ development and archiving that could function in a non-Spectrum space environment. Also, the possibility of file transfer between Spectrum and emulator/ PC harddrive.

PCI Spectrum. (as sent to Amstrad UK.)
For a number of years I have been using emulation for Sinclair Spectrum to run my software on a PC. This has allowed me to transfer many of my titles onto PC via a Spectrum/ Disciple Interface and a connected 3.5" floppy. With so much software still availble and the quality of the titles due to the powerful low level programing of the Z80 processor and resources these are superb little projects that are almost artwork through their ingenuity and implementation.
Software emulation doesn't show the full finnesse of the product although it is trully impressive. It's main advanyage is the IBM PC file handling that allows tape segments and data to be loaded quickly and easily into the emulator.
A PCI board for IBM PC with the full Spectrum architecture would be applied as Spectrum hardware emaulation in a PC window or full screen. (Both in full authentic Spectrum resolutions and performance, even scalable like changing the size of your monitor.) This would lift the integrity of the market breaking hardware from the 80's with the benefits of PC monitor and hardrive replacing the TV and tape deck finally realising the true genious of the durability and core of the Spectrum itself.
The edge of the installed card could include 2 joystick connectors/ data connections/ VGA monitor/ and composite video/ Super Socket (such as used for SVHS/ DVD) for TV output. This would need to include relavent extention cables.
Imagine running an impressive Sinclair game in full screen Spectrum detail or in a full Spectrum detail Windowed screen whilst printing a document, downloading or checking emails. This could be achieved on a fast 486, or ideally a decent Pentium. I could demonstrate through my collection untold examples of software that are honed Z80 programing that need proper hardware responces. Such a PCI project (I have named PCI Spectrum) would support other Spectrum projects and resources/ awarness.
A 30 second advert on TV could show the development from the 80's with a TV and Data recorder to the 00's with PC monitor and hardrive.This would show the re-presented finnesse of the Spectrum beyond domstic devices of the time. Even on software emulation some could easily think a Windowed Spectrum game is a PC tile rather than a 10-20 year old project. This does not take into account increasingly intersting current developments.
Regards
Kevin Bennett
listener@ukonline.co.uk

No, please not everyone should now order this interface. It´s just some thoughts from Kevin Bennett, who really would like to see his thoughts realized. Sounds surely interesting, even though a Spectrum with VGA-Connection and IDE-Harddisk should be nearly the same...and that is already possible.

Game reviews



Program: Gloop
Producer: Cronosoft / Jonathan Cauldwell
Year of issue: 2003
Price: 4,50 Euro Cassette, 2,99 Euro Download

Thanks to Cronosoft we have once again another program from Jonathan Cauldwell. In 2003 we were simply flooded with new programs so that we simply couldn't get round to testing them all they were arriving so fast.

Gloop is a nice little game about Izzy and his friend. The pair discover some C-64 mutants who want to take over the world… or something like that. Anyway in a nice little platform game you have to pump up the mutants with bubbles of bubble gum so that they rise into the air. When you have managed to get all of them hanging in the air, you have completed the level.

The first thing you notice when playing is the complicated control. So you can't simply place yourself just anywhere and begin shooting bubbles, you always have to walk to them. So that you sometimes come too close to a mutant. Fortunately you don't loose any energy when you touch a mutant which is being pumped up. The difficulty level is about right as it's possible to work your way quite quickly through a number of levels. Izzy's friend keeps us topped up with bubble gum which we have to collect and most often is lying on the upper most platforms where of course there are the most mutants. Never mind even this difficulty can be mastered.
The game suffers somewhat from a lack of variation. The graphics don't change and there are no surprises, it simply gets faster.

The graphics are not especially complex. The platforms are represented with a number of lines. Izzy himself is nicely done and animated as are the mutants.

There is more or less no sound. A pity as for a modern game we normally expect the play to be supported by good sound.

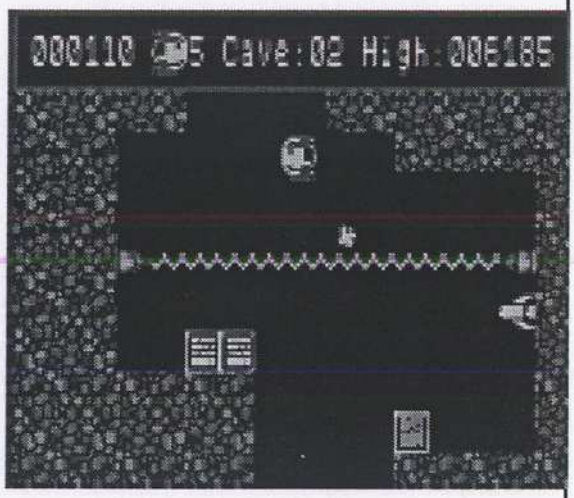
Gloop is certainly fun to play for a while, but soon becomes repetitive.

Te

Program: Rough Justice
Producer: Cronosoft / Jonathan Cauldwell
Year of issue: 2003
Price: 4,50 Euro Cassette, 2,99 Euro Download

So the story: The intergalactic head-hunter cyborg, Mansfield Rough has disappeared for about a month in a distant part of the galaxy and no one has heard anything from him. A message has arrived demanding an unbelievably high ransom, this message has been received from a mysterious alien race which live on a previously unknown planet called DRAGONIA-6809. His young niece Shipley who has just got her pilots licence has decided to race off and teach these nasty aliens a lesson.

Navigate Shipley's ship the Interceptor 010 from cave to cave – keep out of the way of the aliens – shoot at the boxes to discover prizes (some hold jewels which increase the point score, others increase your fire power). Carefully avoid the protective barriers and take care of the rockets which are shot at you. Your weapons are a laser, which can destroy the rockets, aliens and boxes. You also have a bouncing bomb which destroys everything that gets in it's way.



Now the game: Rough Justice is a game from Jonathan Cauldwell and produced by Cronosoft (www.cronosoft.co.uk). After a number of months where Cronosoft has released a number of unknown titles, Cronosoft announced at the Spectrum and SAM show in Norwich (England) on the 1st November 2003 a new project. And on the Cronosoft stand 'Rough Justice' was presented as it played some AY-Sound.
The quality of the movement and the effects of gravity are impressive. Plus a bouncing bomb which travels majestically through the cave (as if it was weightless) and on the way destroys enemy and property. In the rare atmosphere the exploding enemy are converted into the finest of particles. Groovy. Even someone like me who hasn't studied mathmatics can appreciate the physics programmed into it.

The AY Music fits in very well with the simple design of the game. Yerzmyev's refreshing and interesting AY Programming is excellent and all done in only 9KB. I hope we can hear more of his work in future Cronosoft developments.

Jonathan Cauldwell demonstrates with each of his projects just what finesse can be achieved.
A game consisting of 151 rooms programmed in only 48K needs a real artist. The feeling the game creates is very absorbing and full of life as the Spectrum builds the rooms in a random way so that Jonathan only hat to fill the empty rooms.
So after around 10 years of producing budget software for the Spectrum, Rought Justice has achieved a new level of sophistication. And with it's professional sales concept Cronosoft has with the help of it's graphic and musical artists, succeeded in enhancing their products.

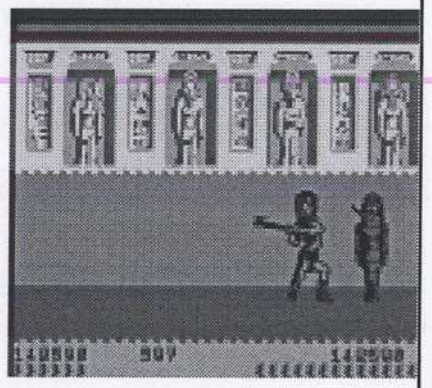
Cronosoft now has an interesting collection of artists (pictures on the cassette inlay, loading screens from Tommy Pereira) which deserve our respect. We can expect more products from Cronosoft, keep a look our for 'MORE TEA VICAR' which is also from Jonathan Cauldwell.

Kevin Benett
(Editors Note: The text was translated from English into German and I hope I have got it mainly correct. Te) (*And now I'm translating it from the German back into English, Hey Thomas what did you do with the original ? Never mind let's hope it's still basically correct –Ian)*

Stars on the Internet

Hello People,
After this section was left out of the magazine last time I'm really pleased to have discovered in the never ending world of the Internet some new interesting web sites for you.

I'd like to start with the Speccy-Spoilers: http://www.speccyspoilers.co.uk/
This site makes it really easy for those of you who want to see how your favourite game ends. In the past you had to work for days and weeks to reach the end of a game, now you just have to look at Speccy-Spoilers. Here you will find an enormous number of Speccy games which have been saved as SNAPs and that at the moment where the game was solved. Many of the games can also be seen as an animated GIF's or as a picture.
A good idea which hopefully won't take away too much of the fun of playing the game.



From the Speccy-Spoilers website I was taken automatically to the RZX-Archive:
http://www.rzxarchive.co.uk/
RZF is the data format used by the Real-Spectrum-Emulator to record games. Using the emulator you can record the progress of a game and later play it back like a film. Some other emulators have also taken on this format, including SPIN and SPECTACULATOR.

Generally these files don't just hold a short example from the game but in fact the complete solution. Rather like our 'Double H Team' Interactive. There are though not many adventures but rather complex games like Batman and Castle Master. Don't forget to install the relevant emulator and then it's worthwhile to take a look at this site.

Yerzmyeye has sent us a link to a site from Lithuania:
http://www.ircpeople.times.lv/
A number of Speccy fans from Lithuania are using this site to present themselves. And incidentally it won't be long before Lithuania is part of the European Union… In any case the home page begins with a humorous questionnaire. Too date about 70% of all visitors say that they own a Spectrum. Around 20% don't have one and the rest asked 'What is a Spectrum' ?

If you look at the graphics on this site then the Spectrum must be a colour loving computer. You can be astounded by real Spectrum graphics but with a detail and colour content that makes you think you are look at Amiga graphics.
We will certainly see one or more of these graphics this year on our title pages.
But back to the content of the site. Firstly the team present themselves with their pictures. Some of the following pages are unfortunately in Russian and so I couldn't read them but one page I immediately understood… GAMES. There is a lot of new software on this site, everything that has been produced in Russia and neighbouring countries. Including a number of things I have never seen before and which I immediately downloaded. So if you are looking for a source of new software… here it is. Unfortunately of course everything in TR-DOS format, so not suitable for our diskette and cassette systems. So only useful via an emulator but at least something for our subject 'Future Schocks'.

So that's it once again with ideas for your internet surfing.
Don't forget to tell me when you find any sites of interest on the Internet.

Te

TIPS & TRICKS

MAGNETIC MOON - Part 2

So today we will continue with the space saga 'Magnetic Moon'. This section has the sub-title 'Pirates Lair' and is played in the Pirate camp. In comparison to part one this is rather more complex in the way it has to be solved. But decide for yourselves. As those of you who followed the path through the previous section know, part 1 finished with us in a tunnel and now we continue from the same point in part 2. But first a plan of the locations for this part of the adventure:

54) Near the south end of the tunnel
55) At the south end of the tunnel / crate, pile of rubbish, tube of superglue , piece of wire
56) Standing on top of the crate / strip of paper
57) In a narrow ventilation duct / piece of metal grille
58) In a maze of ventilation ducts A
59) In a maze of ventilation ducts B
60) In a maze of ventilation ducts C
61) Clinging to the top end of the rope
62) In a neatly furnished cabin with two bank beds / piece of metal grille
63) In a long brightly lit corridor
64) By a door on the north side of the corridor
65) In a small empty storage room
66) In a circular hallway (Level 2)
67) In a large room full of lockers and wooden benches / some overalls
68) Floating in the statis field of the null-grav shaft

69) Floating in the null-grav shaft A
70) On a walkway around the grav-shaft (Level 3)
71) In a short corridor / closed metal door
72) In a cramped, unlit cupboard room / large plastifoam box
73) Floating in the null-grav shaft B
74) Floating in the null-grav shaft C
75) In a large hallway by the null-grav shaft (Level 5)
76) In a large room full of consoles, algae tanks and hydroponic gardens / heavy wrench
77) In a white-tiled grav-shaft hallway (Level 4)
78) In a sickbay / dictaphone, small key, locker, red gas cylinder, green gas cylinder
79) In the guardroom / unconcious space pirates
80) In a large comfortable furnished room / security pass card, note book
81) Floating in a null-grav field
82) Standing by the null-grav shaft near the shuttle bay (Level 6)
83) Standing by the steel door at the end of a gigantic cavern
84) Standing on the east side of the shuttle bay / crawler, crate
85) In a short metal tunnel
86) Floating at the top of the null-grav shaft
87) By the grav-shaft (Level 1)
88) In the main control room of the installation / notepad
89) On a metal platform near the enormous generator
90) In a short metal passage
91) Outside the door on the surface of the moon

Let's get started now with the solution. As I already mentioned we are in a tunnel in the cliffs and there is a camera monitoring us.

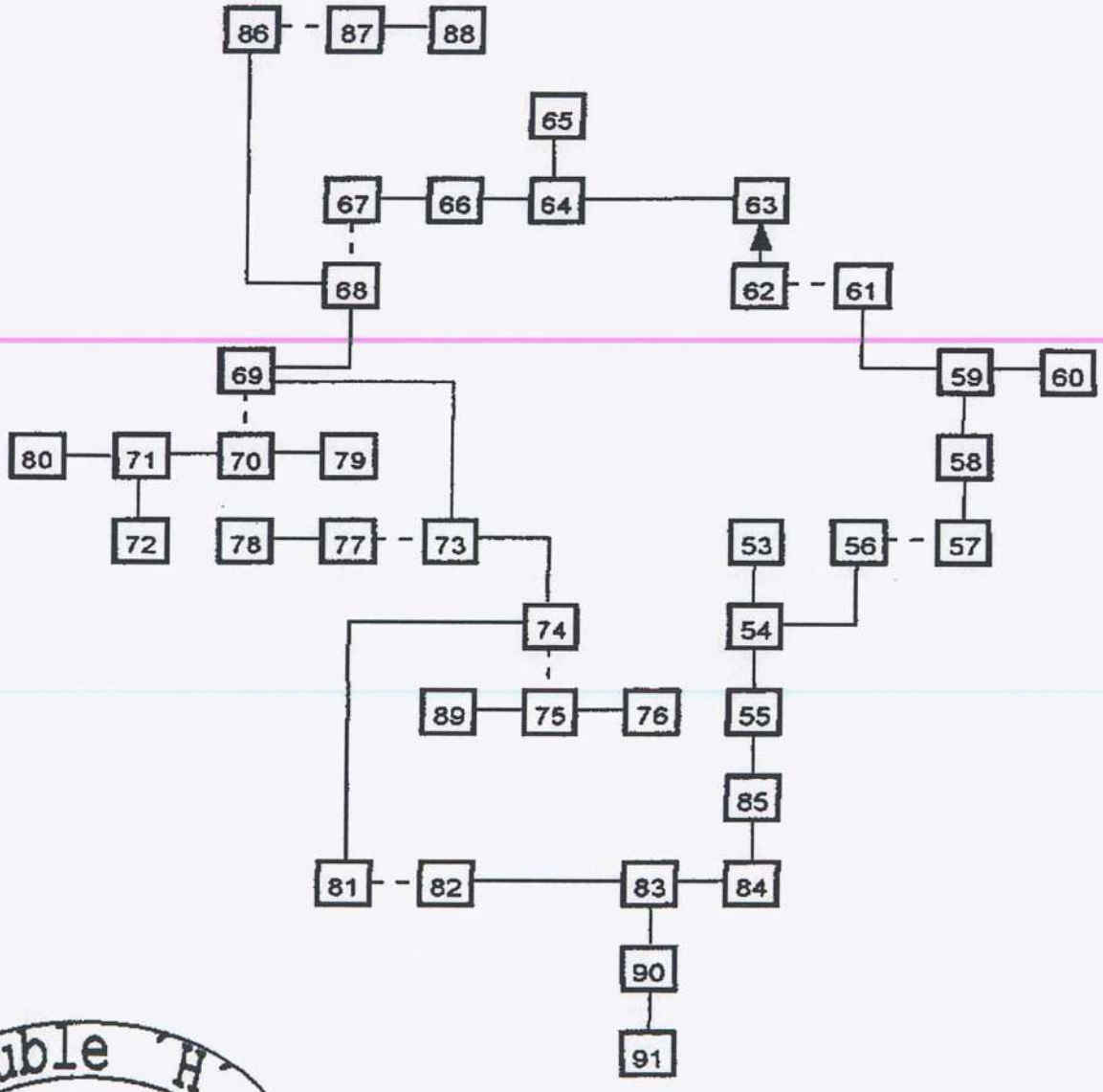
I (we are carrying nothing other than our well filled rucksack, helmet and uniform), look in backpack (here we should find our torch, our laser cutter, forcer, and grappling hooks with rope), S, S (South end of the tunnel – here you find a crate of rum), search alcove, search rubbish (we find a tube of super glue), take tube, look in crate (unfortunately empty), push crate, push crate hard (now we can continue to location 54 – the hard push on the crate has moved it a couple of metres so that it is directly below a metal grill), remove helmet, put helmet into crate, (please don't panic at this point – we get the helmet back later), S, take wire (this can be seen once the crate has been moved) , N, climb on crate, examine paper (simply comes fluttering through the air), take paper, examine grill, take laser from backpack, cut grill with laser, put laser into backpack, climb into hole (we are in a narrow ventilation shaft), take grill, stick grill into hole (using the super glue we hide all traces of our entry), put glue into backpack, switch on flashlight, N, (in a labyrinth of pipes), examine paper (we always have to go in the opposite direct from that in which the paper flutters), N, examine paper, W, examine paper, S, examine paper, N, examine paper (it falls), drop paper (a droid picks it up), look U, examine shaft (once again a grill), take grapnel from backpack, throw grapnel (you may have to try it a few times), take forcer from backpack, climb rope, examine grille, unscrew grille with forcer, climb into hole (we find ourselves in a cabin), switch off flashlight, take grapnel, take grille, screw grille with forcer, drop forcer, put grapnel in backpack, put flashlight in backpack, save (you must do this before we press the button), press button, N, W, pick lock with wire (you may need several tries), N, wait (repeat until the pirates have gone past the door), drop wire (get rid of it as we don't need it anymore), S, W, W (changing room), search lockers (we find overalls), take overalls, examine overalls, remove backpack, wear overalls (now we are certain not to be noticed and can enter the zero gravity shaft), wear backpack, E (a round hall – we see that we are on level 2). Enter shaft, D (level 3), leave shaft, look E (we see the armed pirate), W, S

(cleaning cupboard), look in box (cleaning materials), take box, N, E, enter shaft, D, D (level 5), leave shaft, E (air purification area), take all from box, drop all, search table (we find a wrench), take wrench, W, enter shaft, U, U (level 3), leave shaft, W, S, wait (repeat until the guard and the scientist arrive – the guard puts his hand on a sensor array and says his name into a microphone. The door opens but the scientist says that he has left his notebook on level 5 and asks the guard to go and get it. The guard leaves and the scientist goes through the now open door), N, E, enter shaft (we see a medic who exits at level 4), leave shaft, look W (the medic turns his back on us), W quietly (this has to be done very quickly, or it will be too late), hit medic with wrench, drop wrench, search desk, take dictaphone, E. Enter shaft, U (level 3), leave shaft, W, S (we wait here until the guard comes back with the scientists notebook), press record (we record on the Dictaphone the voice of the guard), N, E, enter shaft, D (level 4), leave shaft, W, search medic, take key, search sickbay, unlock locker (with the medics key), drop key, open locker, take red cylinder, examine red cylinder, read notice (note what it says), take green cylinder, examine green cylinder, E, enter shaft, D (level 5), leave shaft, E (air purifying area), drop Dictaphone, take laser from backpack (this will be useful again in part 3), cut pipe with laser, drop laser, take box, put box on head, open green valve (oxygen fills the box), open red valve, insert red valve into hole (this releases knock out gas to disable the pirates – it doesn't affect us as we are breathing oxygen), remove box, drop box, drop red cylinder, take tin, examine tin, put tin into backpack, take cloth, put cloth into backpack, take Dictaphone, W, enter shaft, U, U (level 3), leave shaft, look E (all unconscious), E, examine pirates (one of them is Ryrzq), pull Ryrzq W, pull Ryrzq W (we are now by the closed door), press Ryrzq hand onto panel, press play (the door opens), pull Ryrzq into doorway (so blocking the door), drop Dictaphone (we don't need it anymore), W, search man (we find an entry card), take card, search desk, take notebook, read notebook (we should note the computer commands for going down), drop notebook, E, E, enter shaft, D, D, D (bottom of the shaft – level 6), leave shaft (we are outside the shuttle hanger), insert card into slot (we are now in a gigantic room), E, pull lever, N (a short metal tunnel), pull lever, N, N (the tunnel looks familiar), N (the crate has gone), S, S, S, push lever, S, examine crawler (once again a grill), look in crate, take helmet from crate, W, W, enter shaft, U, U,U, U, U (at the top of the shaft – level 1), leave shaft (we are now outside the main control room), insert card into slot (the door opens and we go automatically into the room), examine console, take notepad, examine notepad (pages of notes), read notepad (we note the details), turn page (again note everything), drop notepad, W, enter shaft, D, D, D, D (level 5), leave shaft, insert card into slot (we go in and find ourselves on a metal platform in the power generating room), examine computer, examine VDU, type "shutdown all except LS" – the quotes are important), type "shutdown sequence commence", type "Rigel", type "Code Delta" (the southern door on level 6 opens), E, enter shaft, D (level 6), leave shaft, insert card into slot (we enter a large underground cavern), drop card (the card has stopped being useful and we don't need it anymore – the door should now be open), S, press button, wear helmet, turn wheel (the outer door opens), S (we are on the moons surface)… und have solved part two.

We once again save the game in preparation for the third part. And the adventure continues…. So that's it from us for today…. Until we start the third and last part.

© 2003 by Harald R. Lack, Möslstraße 15 a, 83024 Rosenheim und
Hubert Kracher, Schulweg 6, 83064 Großholzhausen

Magnetic Moon - Part 2



Double 'H' Software

mapped by

© 2001

Immortally-Pokes

Hello Spectrum-Fans!!

Today we want to take a look at a completely different subject.
For many it's really useful in difficult games to be able to use a suitable POKE to provide for example infinite lives so that they can play the game to the end or perhaps to see a new level. In the past when there were many magazines devoted to the Spectrum it was possible to find these POKES in so called POKE lists. Unfortunately these magazines have disappeared or no longer cover the Spectrum so that many Spectrum users have one or more games lying around and haven't found the necessary pokes for them. A lot of people think that a normal user has no chance to find out these pokes for himself. This is not correct. You just need to know a few rules and be able to think logically. All of us should be able to that. So today we want to try to invade the secret world of infinite life pokes.

A user who sets off to find these pokes needs one thing – Patience!! But any Spectrum user should already have that. I mean how often has our much loved computer tested our patience by having a life of it's own. We also need a version of the game that hasn't been manipulated by various tricks so that it rejects our attempts to access it. Betadisk-, Disciple-, +D- or Multiface users will of course laugh at this, because they have the hardware to save an unprotected version very easily. But even for the tape users it's not hopeless it's just a bit more complicated. Anyone who can use machine code has of course an advantage, but for those of you without a grounding in machine code it's still possible without using assembler knowledge.

So let's start without any hectic. The start position is as follows. The machine code for the program we want to analyse is already in the memory of our computer but has not been started. We know that somewhere in the program is a routine which at a particular time in the game reduces the number of lives we have. And that's just what we want to stop happening. Anyone who has some experience of programming knows from programming books that it's good programming practice in any language to build your program in a modular form. This means that the program should be built from a number of partial programs known as modules which connect to each other. The program we want to analyse is bound to be made up in this way. For the non-MC users amongst us I want to say that these sub-programs are accessed from the main program by use of a CALL instruction and they return to the main program with the RET instruction. If we look at the program using a decimal decoder, we will notice that now and again the value 201 (decimal for RET) appears in the memory. As a rule these 201 values make the end of a sub program or sub routine as it's called and most often the next memory location contains the start of the next sub routine. Rather differently than from a PC, because of the limited memory in the Spectrum the programmer is forced to pack his code as efficiently as possible and with this we have found a way of identifying our required POKE. We simply search the memory for a value 201=RET. Now we POKE into the next memory location after this the value 201. Anyone who is thinking will now know what has happened. When this sub routine is called the first instruction it sees is a RET command to jump back to the part of the program which called it, so the sub routine can't be completed. Now we should start the program and see what has changed. As we don't know which sub routine we have disabled there can often be unusual effects. It could be that particular figures have disappeared or the picture is not built correctly and parts are missing or corrupted. This method takes lots of time because the value 201 occurs a lot of times in most programs and not just in the program but also in data fields.

Unfortunately we can't tell what is program and what is data. If we don't get the effect we want then we have to change the location we poked back to it's original value. If we can't stop the program for whatever reason or the program has crashed then there is only the possibility to press the reset button and reload the program again. Of course tape users need more patience in this case.

Lets look at another possibility which would allow us to find a suitable POKE. From experience we know that whenever we die in a program one is subtracted from the number of lives left and these allow us to set the number of lives to infinite. Rather differently from the previous method where we were looking for the routine which would modify the number of lives left, here we expect that the number of lives is in a particular memory location and there will be a pointer to this memory location. Most often this is the value held in the HL register pair. Everytime the player loses a life the contents of this memory location will be decreased by 1. The instruction to do this 53 dec (HL). You can find this instruction in the Sinclair handbook in appendix A. The code dec (HL) means decrement the value in the memory location pointed to by HL by 1. And it doesn't matter where that memory location is. We search for all memory locations which contain the value 53. We change the value 53 to Zero and that tells the computer just to do nothing when it reads this instruction (called a NOP (No Operation) If nothing happens then we can't lose a life.

Now, there are a number of programs where all this just doesn't achieve the desired effect. A well known program of this type is Paperboy. Sometimes it's necessary to do something we haven't done up till now and that is to search the memory for the value 53 and also what follows it. Which means decrement the contents of the memory location pointed to by HL and if it reaches zero then there is a jump instruction in the next location. For example:

```
DEC     (HL)    53
JUMPZ   NN      202, 180,197
```

The decimal values are simply the code for the assembler instructions (see handbook). In plain English this means :

Decrement the contents of the address pointed to by HL by one and then check whether the zero flag is set (which should be true if this address now contains zero). When this is true then jump to the address 180+256*197

If you find such a construction in the memory then all of the values have to be poked to zero. So you will have 4 locations with zero in them. Of course as with the past examples if it doesn't work then you need to put the memory locations back to their original values and then carry on searching. The same sort of problems can occur here as with the first method and that is for example a program crash. But the value 53 occurs much less often in a program than it's brother 201. So at least the number of mistaken tries will be drastically reduced.

With that we have the possibility to look for our own pokes. Now just to finish a couple of comments concerning the possibilities to stop or freeze a program using hardware. The ISO-ROM, SOFT-ROM, Multiface, NMI-Button and various disk systems have the possibility of change the code at a chosen point. Some break the code down into blocks others

compress or relocate it. A poke which has been found for a normal version will of course no longer work and you would need to search for a poke for that special version.

Enough on this subject. We hope that some of you may now know how to help yourselves with that special game problem. Of course it's not exactly simple, but when there is no other solutions then in frustration one is prepared to try anything.

Have fun with the pokes. See you soon……

(c) 2003 by Harald R. Lack, Möslstraße 15 a, 83024 Rosenheim
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Closing words from the Editor

Dear SUC-Session reader,
Better late than never, here is a quick look back over the year 2003 which brought us a number of things. For example CRONOSOFT a new software house, ever more IDE interfaces up to and including those for FLASH memory cards and large numbers of games, demo's, sounds etc. new programs and those not just from Russia.
But unfortunately there were also negatives to which we have to count the disasters with SCENE+ which is now appearing 5 months late.
Really positive is that with this issue I had lot's of support from the users. There are still enough articles left over for a further issue but I've held these back on purpose, rather than fill one issue with a number of articles on similar subjects. But I'm sure we will use all of the articles in the next few issues and maybe even present 2 adventure solutions in one issue.
A small amount of criticism to those who count themselves in the circle of Spectrum users but have never sent a single letter or E-Mail to us. I can only repeat once again: If each reader would send us just 1 short letter, article etc. a year then we would have enough material for the whole year. Unfortunately it simply isn't so but in spite of this I'm really happy to have the circle of 'regular writers' to which there are always new entries, even if we sometimes lose one or the other over time.
It is the same with SCENE+, though the number of users is here smaller or almost non-existent. The result is a very irregular publishing of the magazine.
As you know the continuation of the magazine is dependent on your support. We are still a Spectrum-User-Club and not a commercial magazine. A club should reflect the enthusiasm of it's members and not just the work of a few.

In this vein I would ask everyone to look at whether they could not provide more input for the club.

Thomas

Extraction from our pricelist:

New:	
Drive-Set with Floppy, PSU and cable for +3 B:drive or floppy-interface	40,00 Euro
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VGA-Box (leitet Video-Signal an PC-Monitor weiter)	49,00 Euro
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